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In the Claims

Applicants submit a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing.

1.-11. Canceled

12. (Currently Amended) An authentication device for authenticating a mark on a substrate, the mark being of any desired pattern and including a light-sensitive compound that, when irradiated with IR light having a predetermined excitation wavelength in the IR range, emits IR light having a first predetermined emission intensity at a first predetermined emission wavelength in the IR range, with the first predetermined emission wavelength comprising any wavelength selected from a range of wavelengths between and including peak and non-peak emission wavelengths and with the predetermined excitation wavelength being different from the predetermined emission wavelength, with the first predetermined emission intensity comprising any intensity selected from a range of intensities between and including relatively high and low emission intensities, the device comprising:

a video mode comprising:

a video mode detector for detecting an image of at least a portion of the substrate known to include the mark; and

a video display for displaying the image; and

a snapshot mode comprising:

an IR light source adapted to irradiate the substrate, said IR light source producing IR light having ~~[[a]]~~ the predetermined excitation wavelength in the IR range and irradiating the light-sensitive compound in the authentication mark with the IR light having the predetermined excitation wavelength so that the light-sensitive compound emits IR light having the first predetermined emission intensity at the first predetermined emission wavelength;

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a filter disposed along a light path of the IR light having the first predetermined emission intensity at the first predetermined emission wavelength emitted from the light-sensitive compound, the filter allowing IR light having the first predetermined emission intensity at the first predetermined emission wavelength to pass through the filter while preventing other wavelengths of light from passing through the filter;

a snapshot mode detector comprising an IR light detector adapted to detect any IR light emission, said any IR light emission including light emission having the first predetermined emission intensity at the first predetermined emission wavelength in the IR range from the light-sensitive compound in the mark after the mark has been irradiated with IR light from the IR light source, the IR light detector adapted to provide data representative of the detected first predetermined emission intensity of IR light emission at the first predetermined wavelength from the light-sensitive compound in the mark;

a processor cooperating with at least the snapshot mode detector, the processor processing the data independent of the pattern of the mark, the processor comparing the data that is independent of the pattern of the mark to a standard and rendering an authentication signal based on the comparison; and

a snapshot display for displaying the data and the authentication signal.

13. (Currently Amended) The device of claim 12 further comprising a storage medium for storing the data representative of the detected first predetermined emission intensity of IR light at the first predetermined wavelength from the light-sensitive compound in the mark.

14. (Original) The device of claim 13 wherein the storage medium comprises a storage medium capable of storing the data in a digital format.

15. (Original) The device of claim 13 wherein the storage medium comprises film.

16. (Original) The device of claim 13 further comprising at least one of a date and time stamp stored in the storage medium, the at least one of the date and time stamp

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representing a corresponding at least one of a date and time stamp when the device captured the mark.

17. (Previously Presented) The device of claim 12 wherein the IR light source comprises a flash.

18. (Currently Amended) The device of claim 12 further comprising a source filter disposed within a light path of the IR light source to allow at least ~~one~~ the predetermined excitation wavelength of IR light to irradiate the mark.

19. (Currently Amended) The device of claim 18 wherein the source filter is interchangeable such that a source filter may be selected based upon the light-sensitive compound within the mark.

20. (Original) The device of claim 12 further comprising a touch screen for inputting commands to the device.

21. (Original) The device of claim 12 further comprising a display having at least a portion thereof that includes a split screen, with the video display comprising a first half of the split screen and with the snapshot display comprising the second half of the split screen.

22. (Previously Presented) The device of claim 12 wherein a predetermined color representing the mark is displayed on the snapshot display.

23. (Original) The device of claim 12 wherein the device first displays the image when in video mode, displays the mark when in the snapshot mode, then returns to display the image when in the video mode.

24.-85. Canceled

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86. (Currently Amended) The device of claim 12 wherein the detected first predetermined emission intensity of IR light at the first predetermined wavelength ~~IR light emission~~ is detected through a single optical path.

87. (Previously Presented) The device of claim 12 wherein the snapshot mode detector is adapted to be positioned away from the mark by a distance of as little as six inches.

88. (Currently Amended) The device of claim 12 wherein the at least one light-sensitive compound, when irradiated with IR light, emits IR light having a second predetermined emission intensity at a second predetermined emission wavelength in the IR range, wherein the snapshot mode detects ~~[[an]]~~ the first predetermined emission intensity at the first predetermined emission wavelength and ~~[[an]]~~ the second predetermined emission intensity at the second predetermined emission wavelength after the mark has been irradiated with IR light from the IR light source and wherein the data comprises a ratio of the first predetermined emission intensity to the second predetermined emission intensity or a ratio of the first predetermined emission wavelength to the second predetermined emission wavelength.

89. (Previously Presented) The device of claim 12 in combination with a mark, the mark comprising the at least one light-sensitive compound, wherein the mark is invisible to the naked eye and a user can only view the mark on the snapshot display.

90. (Currently Amended) An authentication device for authenticating a mark on a substrate, the mark including at least one light-sensitive compound that, when irradiated with IR light having a first predetermined excitation wavelength in the IR range, emits IR light having a first intensity at a first predetermined emission wavelength in the IR range and a second intensity at a second predetermined emission wavelength in the IR range, with the first and second predetermined emission wavelengths each comprising any wavelength selected from a range of wavelengths between and including peak and non-peak emission wavelengths and with the predetermined excitation wavelength being

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different from the first and second predetermined emission wavelengths, with the first and second predetermined emission intensities each comprising any intensity selected from a range of intensities between and including relatively high and low emission intensities, the device comprising:

a video mode comprising:

a video mode detector adapted to detect an image of at least a portion of the substrate known to include the mark; and

a video display adapted to display the image; and

a snapshot mode comprising:

an IR light source adapted to irradiate the mark, said IR light source producing IR light having [[a]] the predetermined excitation wavelength in the IR range and irradiating the light-sensitive compound in the authentication mark with the IR light having the predetermined excitation wavelength so that the light-sensitive compound emits IR light having the first and second predetermined emission intensities at the first and second predetermined emission wavelengths, respectively;

a filter disposed along a light path of the IR light having the first and second predetermined emission intensities and the first and second predetermined emission wavelengths emitted from the light-sensitive compound, the filter allowing IR light having the first and second predetermined emission intensities at the first and second predetermined emission wavelengths, respectively, to pass through the filter while preventing other wavelengths of light from passing through the filter;

at least one snapshot mode detector comprising an IR light detector adapted to detect any IR light emission, said any IR light emission including IR light emission having the first predetermined emission intensity at the first predetermined emission wavelength and the second predetermined IR-light emission intensity at the second predetermined emission wavelength after the mark has been irradiated with IR light from the IR light source, the IR light detector adapted to provide data representative of the detected first and second predetermined emission intensities of IR light at the first and second wavelengths, respectively, from IR-light emissions of the light-sensitive compound in the mark;

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a processor cooperating with at least the snapshot mode detector, the processor calculating a ratio of the first predetermined intensity to the second predetermined intensity or a ratio of the first predetermined wavelength to the second predetermined wavelength, comparing the ratio to a standard and thereafter rendering an authentication signal based on the comparison; and

a snapshot display adapted to display the data and the authentication signal.

91. (Currently Amended) The device of claim 90, further comprising a storage medium adapted to store the data representative of the detected first predetermined emission intensity of IR light at the first predetermined wavelength and the second predetermined emission intensity of IR light at the second predetermined wavelength from the light-sensitive compound in the mark.

92. (Previously Presented) The device of claim 91, wherein the storage medium comprises a storage medium capable of storing the data in a digital format.

93. (Previously Presented) The device of claim 91, wherein the storage medium comprises film.

94. (Previously Presented) The device of claim 91, further comprising at least one of a date and time stamp stored in the storage medium, the at least one of the date and time stamp representing a corresponding at least one of a date and time stamp when the device captured the mark.

95. (Currently Amended) The device of claim 90, wherein the IR light source ~~sources~~ comprises a flash.

96. (Currently Amended) The device of claim 90, further comprising a source filter disposed within a light path of the IR light source adapted to allow at least the one predetermined excitation wavelength of IR light to irradiate the mark.

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97. (Currently Amended) The device of claim 96, wherein the source filter is interchangeable such that a source filter may be selected based upon the light-sensitive compound within the mark.

98. (Previously Presented) The device of claim 90, further comprising a touch screen adapted to accept input commands to the device.

99. (Previously Presented) The device of claim 90, further comprising a display having at least a portion thereof that includes a split screen, with the video display comprising a first half of the split screen and with the snapshot display comprising the second half of the split screen.

100. (Previously Presented) The device of claim 90, wherein a predetermined color representing the mark is displayed on the snapshot display.

101. (Previously Presented) The device of claim 90, wherein the device first displays the image when in video mode, displays the mark when in the snapshot mode, then returns to display the image when in the video mode.

102. (Currently Amended) The device of claim 90, wherein the detected first predetermined emission intensity of IR light at the first predetermined wavelength and the second predetermined emission intensity of IR light at the second predetermined wavelength of IR light emission is detected through a single-optical path.

103. (Previously Presented) The device of claim 90, wherein the snapshot mode detector is adapted to be positioned away from the mark by a distance of as little as six inches.

104. (Currently Amended) The device of claim 90, wherein the at least one light-sensitive compound consists of one light-sensitive compound that is adapted to emit IR

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light having the first predetermined emission intensity at the first predetermined emission wavelength and the second predetermined emission intensity at the second predetermined emission wavelength.

105. (Currently Amended) The device of claim 90, wherein the at least one light-sensitive compound comprises a first and a second light-sensitive compound, wherein the first light-sensitive compound is adapted to emit IR light having the first predetermined emission intensity at the first predetermined emission wavelength and wherein the second light-sensitive compound is adapted to emit IR light having the second predetermined emission intensity at the second predetermined emission wavelength.

106. (Previously Presented) The device of claim 90, wherein the mark is of any desired pattern and wherein the data is independent of the pattern of the mark.

107. (Previously Presented) The device of claim 90, in combination with a mark, the mark comprising the at least one light-sensitive compound, wherein the mark is invisible to the naked eye and wherein the mark is viewable only on the snapshot display.

108. (Currently Amended) A system for authenticating a mark on a substrate, the system comprising:

a mark comprising at least one light-sensitive compound that, when irradiated with IR light having a predetermined excitation wavelength, emits IR light having a first predetermined emission intensity at a first predetermined emission wavelength in the IR range, with the predetermined emission wavelength comprising any wavelength selected from a range of wavelengths between and including peak and non-peak emission wavelengths and with the predetermined excitation wavelength being different from the predetermined emission wavelength, with the first predetermined emission intensity comprising any intensity selected from a range of intensities between and including relatively high and low emission intensities; and

a detection device comprising:

a video mode comprising:



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a video mode detector adapted to detect an image of at least a portion of the substrate known to include the mark; and

a video display adapted to display the image; and

a snapshot mode comprising:

an IR light source adapted to irradiate the mark, said IR light source producing IR light having [[a]] the predetermined excitation wavelength in the IR range and irradiating the light-sensitive compound in the authentication mark with the IR light having the predetermined excitation wavelength so that the light-sensitive compound emits IR light having the first predetermined emission intensity at the first predetermined emission wavelength;

a filter disposed along a light path of the IR light having the first predetermined emission intensity at the first predetermined emission wavelength emitted from the light-sensitive compound, the filter allowing IR light having the first predetermined emission intensity at the first predetermined emission wavelength to pass through the filter while preventing other wavelengths of light from passing through the filter;

a snapshot mode detector comprising an IR light detector adapted to detect any IR light emission, said any IR light emission including light emission having the first predetermined emission intensity at the first predetermined emission wavelength in the IR range from the light-sensitive compound in the mark after the mark has been irradiated with IR light from the IR light source, the IR light detector adapted to provide data representative of the detected first predetermined emission intensity of IR light emission from the light-sensitive compound in the mark; and

a snapshot display adapted to display the data;

wherein the mark is invisible to the naked eye and wherein the mark is viewable only on the snapshot display.

109. (Currently Amended) The system of claim 108, wherein the device further comprises a storage medium adapted to store the data representative of the detected first predetermined emission intensity of IR light at the first predetermined wavelength from the light-sensitive compound in the mark.

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110. (Previously Presented) The system of claim 109, wherein the storage medium comprises a storage medium capable of storing the data in a digital format.

111. (Previously Presented) The system of claim 109, wherein the storage medium comprises film.

112. (Previously Presented) The system of claim 109, further comprising at least one of a date and time stamp stored in the storage medium, the at least one of the date and time stamp representing a corresponding at least one of a date and time stamp when the device captured the mark.

113. (Previously Presented) The system of claim 108, wherein the IR light source comprises a flash.

114. (Currently Amended) The system of claim 108, wherein the device further comprises a source filter disposed within a light path of the IR light source to allow at least ~~one~~ the predetermined excitation wavelength of IR light to irradiate the mark.

115. (Currently Amended) The system of claim 114, wherein the source filter is interchangeable such that a filter may be selected based upon the light-sensitive compound within the mark.

116. (Previously Presented) The system of claim 108, wherein the device further comprises a touch screen adapted to accept input commands to the device.

117. (Previously Presented) The system of claim 108, wherein the device further comprises a display having at least a portion thereof that includes a split screen, with the video display comprising a first half of the split screen and with the snapshot display comprising the second half of the split screen.

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118. (Previously Presented) The system of claim 108, wherein a predetermined color representing the mark is displayed on the snapshot display.

119. (Previously Presented) The system of claim 108, wherein the device first displays the image when in video mode, displays the mark when in the snapshot mode, then returns to display the image when in the video mode.

120. (Currently Amended) The system of claim 108, wherein the detected first predetermined emission intensity of IR light at the first predetermined wavelength ~~IR light emission~~ is detected through a single optical path.

121. (Previously Presented) The system of claim 108, wherein the snapshot mode detector is adapted to be positioned away from the mark by a distance of as little as six inches.

122. (Previously Presented) The device of claim 108, wherein the mark is of any desired pattern and the data is independent of the pattern of the mark.

123. (Currently Amended) The system of claim 108, wherein the at least one light-sensitive compound emits IR light having a second predetermined emission intensity at a second predetermined emission wavelength in the IR range, wherein the snapshot mode detector is adapted to detect ~~[[an]]~~ the first predetermined emission intensity ~~[[of]]~~ at the first predetermined wavelength and ~~[[an]]~~ the second predetermined emission intensity ~~[[of]]~~ at the second wavelength after the mark has been irradiated with IR light from the IR light source and wherein the data comprises a ratio of the first predetermined emission intensity to the second predetermined emission intensity or a ratio of the first predetermined emission wavelength to the second predetermined emission wavelength.

124. (Previously Presented) The system of claim 108, wherein the at least one light-sensitive compound emits IR light having a wavelength in the IR range that is less than or equal to about 2400nm.

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125-168. Canceled

169. (New) The device of claim 12 wherein the snapshot mode detector is adapted to be positioned away from the mark by a distance of up to twelve feet.

170. (New) The device of claim 90 wherein the snapshot mode detector is adapted to be positioned away from the mark by a distance of up to twelve feet.

171. (New) The system of claim 108 wherein the snapshot mode detector is adapted to be positioned away from the mark by a distance of up to twelve feet.